

# Municipal Separate Storm Sewer Systems and YOU

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# MS What?

According to 40 CFR 122.26(b)(8), “**municipal separate storm sewer** means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)...including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States.
- Designed or used for collecting or conveying stormwater;
- Which is not a combined sewer; and
- Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.”



# MS4

## General WV/NPDES Water Pollution Control Permit

- National Pollution Discharge Elimination System
- Administered by WV DEP
- Required in urban areas
- Regulates stormwater runoff and some non-stormwater discharges provided they have been determined not to be substantial contributors of pollutants

# Discharges

Uncontaminated water line flushing

Landscape irrigation

Diverted stream flows

Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))

Uncontaminated pumped groundwater

Discharges from potable water sources

Foundation drains

Air conditioning condensate

Irrigation water

Springs

Water from crawl space pumps

Footing drains

Lawn watering runoff

Water from individual residential car washing

Flows from riparian habitats and wetlands

Residual street wash water

Discharges or flows from fire fighting activities

A discharge authorized by a separate NPDES permit



# MS4 Requirements

Develop Stormwater Management Program (SWMP) to reduce the discharge of pollutants in storm sewer to the “maximum extent practicable ”

Six Minimum Control Measures

Document, inspect, evaluate, assess, and report Best Management Practices (BMPs)

Submit Annual report to DEP

# MS4 Focus

Comply with permit requirements

- Identify, evaluate, and assess BMPs
- Compile numeric and narrative information

Funding

Economic cost-benefit

Customer satisfaction

Environmental responsibilities

## MS4 Annual Reporting Instructions

The 2009 WV Municipal Separate Storm Sewer System (MS4) General Permit was reissued in June of 2009. Permittees that have filed a Notice of Intent to discharge under this permit are now required to submit the following information in their annual reports. This information can be found on page 24 & 25 of the permit.

1. Please provide all the information requested.
  - a. A description of the activities undertaken and implemented for each of the minimum control measures;
  - b. An explanation of how the permittee measured the effectiveness of each of the activities implemented;
  - c. The status of compliance with each of the BMPs that were specified in the permittees stormwater management program;
  - d. An assessment of the progress toward achieving the identified measurable goals for each of the minimum control measures;
  - e. Results of information collected and analyzed, including monitoring data, during the annual reporting period;
  - f. A summary of the stormwater activities the permittee plans to undertake during the next annual reporting period;
  - g. A change in any identified measurable goals that apply to the minimum control measures;
  - h. A description of the status of the street and parking design assessment;
  - i. A description of the coordination efforts with other MS4's, County Governments, colleges, universities, correctional facilities, prisons, and any other entity regarding the implementation of the minimum control measures including the status of any

# Your Focus





# Your Focus

Healthy environment

Future generations

Aesthetics

Tourism





# Merging Paths

107	<b>E. Better Site Design (BSD) &amp; Smart Growth Supplement</b>				
108	S = Satisfactory U = Unsatisfactory N/A = Not Applicable				
109	<b>Item</b>	<b>S</b>	<b>U</b>	<b>N/A</b>	<b>Comments</b>
110	<b>1 Site Layout BSD Techniques</b>				
111	a. Pre-development natural drainage pathways, soil characteristics, topography, and vegetative cover identified				
112	b. Amount of grading minimized				
113	c. Steep slopes (as locally defined) left in natural condition				
114	d. Open space and other natural areas preserved				
115	e. Buffers provided on intermittent streams and wetlands				
116	f. Floodplains for intermittent streams left in natural condition				
117	g. Street Length Minimized				
118	h. Street width and ROW width are minimum allowed				
119	i. Stream crossings minimized				
120	j. Cul-de-sacs alternatives selected (hammerhead, loop road)				
121	k. Cul-de-sac diameter is minimum allowed				
122	l. Grass swales used in lieu of curb & gutter				
123	m. Minimize driveway lengths/widths or use shared driveways				
124	<b>2. Site Layout Techniques for Infill/Redevelopment (component of local Smart Growth policies)</b>				
125	a. Setbacks and/or height restrictions reduced for efficient use of space				
126	b. Transit, pedestrian, and bicycle access & facilities				
127	c. Urban forestry, tree preservation				
128	d. Green roofs				
129	<b>3 Parking Lot BSD &amp; Smart Growth Techniques</b>				
130	a. Shared parking used				
131	b. Structured parking used				
	c. Pervious parking for overflow and/or				
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# Minimum Control Measures

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Controlling Runoff from Construction Sites
5. Controlling Post-Construction Runoff from New Development and Redevelopment
6. Pollution Prevention & Good Housekeeping for Municipal Operations

# Public Education and Outreach

## Why

- **Increase support** for the program through greater understanding of reasons why it is important
- **Increase compliance** as public becomes aware of personal and community responsibilities.

## How

- Form partnerships
- Distribute educational materials
- Conduct outreach activities about the impacts of stormwater discharges on local waters and the steps that can be taken to reduce stormwater pollution

# Educational Materials and Strategies

- **Brochures or fact sheets** for general public and specific audiences
- **Recreational guides** to educate groups such as golfers, hikers, paddlers, climbers, fishermen, and campers
- **Alternative information sources**, such as web sites, bumper stickers, refrigerator magnets, posters for bus and subway stops, and restaurant placemats
- **A library of educational materials** for community and school groups
- **Volunteer citizen educators** to staff a public education task force
- **Event participation** with educational displays at home shows and community festivals
- **Educational programs** for school-age children
- **Storm drain stenciling** of storm drains with messages such as “Do Not Dump - Drains Directly to Lake”
- **Stormwater hotlines** for information and for citizen reporting of polluters
- **Economic incentives** to citizens and businesses (e.g., rebates to homeowners purchasing mulching lawnmowers or biodegradable lawn products)
- **Tributary signage** to increase public awareness of local water resources

# Public Involvement and Participation - Why

- **Broader public support** since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation
- **Shorter implementation schedules** due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers
- **A broader base of expertise** and economic benefits since the community can be a valuable, and free, intellectual resource
- **A conduit to other programs** as citizens involved in the stormwater program development process provide important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a stormwater program on a watershed basis, as encouraged by EPA and WV DEP.



# Public Involvement - How

- **Public meetings/citizen panels** allow citizens to discuss various viewpoints and provide input concerning appropriate stormwater management policies and BMPs
- **Volunteer water quality monitoring** gives citizens first-hand knowledge of the quality of local water bodies and provides a cost-effective means of collecting water quality data
- **Volunteer educators/speakers** who can conduct workshops, encourage public participation, and staff special events
- **Storm drain stenciling** is an important and simple activity that concerned citizens, especially students, can do
- **Community clean-ups** along local waterways, beaches, and around storm drains
- **Citizen watch groups** can aid local enforcement authorities in the identification of polluters
- **“Adopt A Storm Drain”** programs encourage individuals or groups to keep storm drains free of debris and to monitor what is entering local waterways through storm drains.



# Illicit Discharge Detection and Elimination (IDDE)

- Sources of Illicit Discharges
  - Sanitary wastewater
  - Effluent from septic tanks
  - Car wash wastewaters
  - Improper oil disposal
  - Radiator flushing disposal
  - Laundry wastewaters
  - Spills from roadway accidents
  - Improper disposal of auto and household toxics
- “Illicit” because MS4s are not designed to accept, process, or discharge such non-stormwater wastes

# MS4 IDDE Requirements

Develop, implement and enforce an illicit discharge detection and elimination program

- **A storm sewer system map**, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls
- Through an **ordinance**, or other regulatory mechanism, a prohibition on non-stormwater discharges into the MS4, and appropriate enforcement procedures and actions
- **A plan to detect and address** non-stormwater discharges, including illegal dumping, into the MS4
- The **education** of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste
- The **determination of appropriate best management practices** (BMPs) and measurable goals for this minimum control measure.



# IDDE Options

- Educational Outreach
  - Developing informative brochures, and guidance for specific audiences (e.g., carpet cleaning businesses) and school curricula
  - Designing a program to publicize and facilitate public reporting of illicit discharges
  - Coordinating volunteers for locating, and visually inspecting, outfalls or to stencil storm drains
  - Initiating recycling programs for commonly dumped wastes, such as motor oil, antifreeze, and pesticides
- Address failing septic systems
  - Tuscarora Creek watershed septic system pumping and repair vouchers
  - Onsite System Loan Program (WV)
    - Up to \$10,000 low interest loan
    - Install, repair, or replace onsite septic systems
    - Connect to a public treatment system

# Controlling Runoff from Construction Sites

- Sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands
- Pollutants commonly discharged from construction sites
  - Sediment
  - Solid and sanitary wastes
  - Phosphorous (fertilizer)
  - Nitrogen (fertilizer)
  - Pesticides
  - Oil and grease
  - Concrete truck washout
  - Construction chemicals and debris



# Controlling Post-Construction Runoff

Increasing impervious surfaces alters hydrology

Two substantial impacts of post-construction runoff

- Water quality: increase in type and quantity of pollutants in stormwater runoff
- Water quantity: increase in quantity of water delivered to streams during storms

# MS4 Responsibilities

- Develop and implement strategies which include structural and/or non-structural BMPs
- Have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls
- Ensure adequate long-term operation and maintenance of controls
- Determine the appropriate best management practices and measurable goals

# Post-Construction BMPs

- Better Site Design
- Sheet Flow to Vegetated Filter Strips and Conservation Areas
- Impervious Surface Disconnection
- Bioretention/Raingarden
- Permeable Pavement
- Grass or Vegetated Swale
- Filtration or infiltration
- Regenerative Stormwater Conveyance System
- Rainwater Harvesting
- Vegetated Roofs
- Stormwater Wetlands

# Pollution Prevention & Good Housekeeping

- MS4 must examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that
  - Collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways
  - Results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems
- Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system

# Taking Responsibility

## Goals

- Improve water quality
- Reduce stormwater runoff flash flooding

## Options for you

- Get involved
  - Volunteer for plantings, clean-ups, or monitoring efforts
  - Communicate concerns and report violations
  - Promote Low Impact Development and Best Management Practices by educating yourself and others
- Implement and report your own BMPs
  - Rain barrels
  - Grassy or vegetative swales
  - Raingarden
  - Test your soil and minimize fertilizer applications



# Sharing Results

MS4s can't report what they don't know

## West Virginia

- Ground Truthing - [John.M.S.King@wv.gov](mailto:John.M.S.King@wv.gov)
  - Collect various information at specific geographic locations
  - Map and link info through Google Earth - FREE
  - Looking for cooperative partnerships and computer labs
  - FREE workshops start in October – focus on watershed associations, but anybody interested is welcome!
- Watershed Assessment Branch Sampling Programs
  - Wadeable Streams Monitoring (Random and Targeted)
  - Total Maximum Daily Load (TMDL)
  - Ambient Water Quality Network (AWQN)
  - Long Term Monitoring Stations (LTMS)
  - Lake Monitoring
  - Continuous (Time-Series) Monitoring

# SOS - Safe Our Streams

Izaak Walton League of America

<http://www.iwla.org>

Maryland

<http://www.dnr.state.md.us/bay/education/programs.html>

<http://md-rockville.civicplus.com/index.aspx?nid=637>

Pennsylvania

<http://saveourstreamspa.org>

Virginia

<http://www.vasos.org>

West Virginia

<http://www.dep.wv.gov/WWE/getinvolved/sos>

# Thank You

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